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WAGES OF MANAGEMENT.[1]

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Under the complexity of present-day agriculture, it is only through sound business practices, and by the use of a keen and alert intelligence on the part of the agricultural entrepreneur, that profits can be made and the business kept in a flourishing condition. It is necessary for the farmer, if he is to be successful, to maintain a constant watchfulness over his business and to take advantage of every opportunity which offers itself. He must exercise, constantly, the technical knowledge which he has gained during his experience as a farmer, as well as his personal resourcefulness and ingenuity in avoiding losses, great and small, to which the business of farming is peculiarly liable; losses from storm, drouth, disease, and economic mischance. It is only as he exercises an intelligent supervision over his farm that he can expect to gain any income above wages for his manual labor, and interest on the capital which he has invested in the business. Further, it is only through intelligent management on the part of the majority of farmers, that the rest of society can expect to obtain, cheaply, a supply of foodstuffs, and the produce of agriculture in general.

Wages of management arise because something is necessary to the successful management of a business beyond the mere putting forth of physical effort, and the presence of the physical factors of production. It is necessary that there be some guiding intelligence to coördinate the efforts of the laborers, some person who is willing to absorb the shocks of economic changes and to bear the losses in order to have the gains. This function is performed by the entrepreneur, and his remuneration consists in three principal parts which are distinct in their derivation, though difficult to separate in any particular business.

The first part is for insuring to the other persons engaged in the business their shares of the product, that is to the laborers, to the landlord, and to the capitalist who has advanced the necessary funds.

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[1] Paper presented for publication in the Journal of Farm Economics, 1920. Owing to a lack of funds in the Association Treasury, this paper was not printed last year.

The second and largest part of the income of the farmer-entrepreneur may be considered as his true wages of management. This is the remuneration for his mental labor, for his efforts to combine in the most effective proportions the factors of the business, to coordinate their actions, to direct them into the most profitable channels, and to surmount without loss the recurring crises of his business.

The third factor which may enter into or affect the income of the farmer results from the conjunctures of the conditions under which he is operating, and over which he has little or no control. Such are favorable seasons, the proximity of markets, of railroads, and of good highways, whose advantages have not yet been swallowed up by an increase in his rent, or in general, those conditions which for a short time cause an increase or decrease in his profits. Opposing tendencies, however, may in the long run counterbalance the profits from such a source.

If such additions to profits continue, other agents in production will demand a share of them, and at last the farmer will find himself no better off than before, except for the first increment of profit from innovations which later became permanent and were not followed by corresponding disadvantages. From these causes, especially from variations in seasons, will result a very considerable fluctuation in the farmer's profits from year to year, but very little which will not be swallowed up in the next year's loss.

The third part of that income to which is applied the term "profits" needs to be borne in mind only as a cause of a wide annual fluctuation. The other two parts, of business insurance and genuine wages of management, demand a further consideration. It cannot be said of either of these that it is not earned.

The small remuneration which the farmer may be regarded as receiving for business insurance, is paid him for a definite and valuable service to society through which he stabilizes the business and assumes the risk for the other agents in production. However, this insurance is small, and because it is not possible to determine its exact amount for a particular farm, no attempt will be made here to separate it from actual wages of management.

The second division of "profits," the farmer receives for the most valuable service he renders society, and for that service for which he alone is particularly fitted. It is scarcely necessary to repeat the assertion that without intelligent oversight on the part of the farmer-manager, his business would soon go to pieces. And when, through favorable chances, an unintelligent and unskilled farmer is permitted to continue his business for a while, it is likely to be neither profitable to himself nor productive enough to be of value to society.

Wages of management possess the nature of a differential. They are not the same on all farms, and there is not always something left, after all expenses are paid, to which the name "wages of management" may be applied. The annual occurrence of a deficit instead of a surplus on a large number of farms is well known. It may be said that wages of management occur, for the most part, as a differential between the better and less efficient classes of farmers. *The wages of management of an individual farmer-entrepreneur represent the value, to society, of the successive judgments which that farmer must make in organizing and directing the factors of production in his business.* They differ among farmers of a given group and neighborhood, because some possess to a greater degree than others those qualities which make for efficient management. Since profits are the ultimate aim of every business, it may be said that wages of management may be measured, roughly and over a long period of years, by the profits which one farmer makes as compared to those of the farmer whose efficiency barely enables him to remain in the business.

From the farmer's point of view it may be said that, it does not matter greatly whether or not his income be divided up so that part of it is called wages of management and part of it by some other name. If his total net income falls below a certain point, he is simply forced to quit farming and go into some other business which will afford him an economic sufficiency. On the other hand, the farmer may justly demand prices for his services which will repay him for his investment in technical education, or in that experience which is essential to the agricultural business, and which is to be obtained only at a considerable cost of time and money.

From the social point of view, however, a somewhat different aspect of the question appears. For instance, in the case of price fixing, such as was necessary during the recent war, it will be found necessary to grant a price which will include an allowance for managerial services to those farmers whose products are necessary to fill the demand of the consumers. The price must permit continuance of production by these farmers, or at least, it must be sufficient to induce them to remain in the business. The difference between the level of price which will be necessary to supply a market, and the cost of production on a given farm is, over a long period of time, the closest measurement we can get of managerial ability, and comprises wages of management.

It must be borne in mind that the price necessary to supply a given market does not need to cover the expenses of the least efficient producer, for the permanently inefficient producers comprise the flotsam and jetsam of economic society, and their product is of very little significance in determining the level of price. It may be assumed that the inefficient producers are in the process of being eliminated from business, and that they can be replaced by more efficient ones.

There are also many producers each year, whose cost of production is high because of economic misfortune, often of a seasonal or temporary nature, and which the producers may expect to recoup in the following years. In other words, this is the risk which is covered by business insurance.

Again, it is possible, especially on non-specialized farms, for losses on one crop or operation to be covered by gains on another. And many farmers continue, from year to year, producing some one or two products at a loss, because they keep very poor accounts and treat a farm as one productive unit, rather than as a combination of several.

From the foregoing facts it becomes necessary to place the normal or bulk line price at a level considerably below the cost to the least efficient producer, and below the level which would be fixed in a business where there is sharper competition, and where the inefficient are forced out more quickly. A bulk line or normal price will include a differential element which, over a long period of time, will be the closest possible measure of managerial ability, whether it be called wages of management or profits.

If an attempt is to be made to measure wages of management over a *short* period, the greatest difficulty will be to eliminate temporary fluctuations and still to grant each farmer an allowance which is in direct relation to his managerial ability, and which will, in the long run, equal the difference between his cost of production and that of the bulk line producer.

Several methods for allotting a portion of income to wages of management have been employed, but none of them have been founded on any sound logical or statistical basis. Among the principal methods which have come under the writer's observation, there were three principal ones which will be discussed simply because they were the principal ones to be employed in the past.

UNIFORM ALLOWANCES.

In Michigan Bulletin No. 277, an allowance of $6.00 per cow is made for supervision by owner. This device is too rough and inexact to be admissible. It fixes an arbitrary allowance for all dairies without regard to the efficiency of their management. It is strictly inelastic, and has no reasonable foundation.

PERCENTAGE OF COST.

In several studies, a method of allowing ten percent of cost for wages of management has been followed, apparently on the authority of the Department of Agriculture. This method is perversely elastic. Efficiency of management is inversely correlated to the cost of production. Hence, to allot a direct proportion of that expense as wages of management, has actually the effect of putting a premium on inefficiency rather than on efficiency of management.

FARMER'S ESTIMATE OF HIS OWN VALUE.

A few investigations[2] have attempted to make a rough sort of an approach to the differential cost of management by getting from each farmer, his own estimate of the value of his care of his dairy, above that as ordinary labor. The answers of the farmers, when averaged for classes or groups, have shown a relationship to the efficiency of management, but this has been small and much less in proportion than the variation in cost. While the efficient dairyman has been sufficiently conscious of his value usually to allow himself a higher wage of management than the inefficient one, the inefficient ones generally seemed to value themselves at a much higher rate than the state of their business would warrant. This method obtains a measurement of the farmer's ego rather than of his ability. The difference between such averages was not sufficient to provide any adequate measurement of the differences in ability, and therefore of the value of the managerial services.

Wages of management cannot be measured by profits alone, because every farm demands some supervision, whether it be of the most intelligent sort or not, and this costs something, whether or not the business be profitable. On the other hand, if this supervision is inefficient and results in a loss instead of a profit, the farmer can expect to receive nothing for it, but must charge it up to his own inability.

Again, profits are measured by the difference, or spread, between the cost of production and the prices for which the products are sold. Prices may not always be at the normal or long-time rate. At times they may, because of some unavoidable scarcity, rise a considerable distance above the cost of production. On the other hand, as was the case for a number of years in the dairy business, prices may be reduced considerably below the cost of production, because of an overdevelopment of some branch of agriculture, which cannot readily be adjusted to the demands of the market.

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[2] For instance, in Delaware Bulletin No. 118.

Before attempting to set forth a method for determining wages of management, it may be well to sum up the principal considerations which must be borne in mind in framing such a device, and which may serve as criteria in comparing this with other methods now in use.

1. Wages of management arise as remuneration for a definite service to society, that of direction and coördination of a business, and should be directly correlated to the efficiency with which that service is performed in a given business.
2. Supervision is necessary whether the business be highly efficient or not, and this supervision costs something whether or not there be a profit. But the farmer must expect to bear the loss of this expense if the management be inefficient.
3. The factor of business insurance may be combined with wages of management for convenience, and because it cannot be isolated by any device now in use.
4. There is an element of chance which causes profits to vary widely from year to year. It is seldom possible to tell just what part of profit is composed of true wages of management, and what part results from a favorable conjuncture of conditions, or how much profits have been reduced by an unfavorable conjuncture.
5. Therefore, profits alone cannot serve as a measure of wages of management, for a particular farm and in a particular year.
6. Profits depend on price, and price may or may not be at the normal level during a short period of time under study. By using the bulk-line cost instead of market price, the normal level of price may be followed from year to year.
7. A direct percentage of cost may not be used, because it bears an inverse correlation to the efficiency of management.
8. The device adopted must take the above facts into consideration, and at the same time must be sufficiently simple to be readily understood, and to be used in the ordinary cost of production study without demanding involved computations.

A Suggested Method of Computing Wages of Management.

It might be said that, since a bulk-line price theoretically includes wages of management, as the difference between the cost on a given farm and the price so fixed, the farmer may be allowed to take his wages of management as profit. Hence, as far as the farmer is concerned, it is not necessary to compute wages of management at all. But it may be desired to obtain a single term which will permit a direct comparison of the success of different farmers or types of farmers. The following method has been devised with this in mind.

In devising the following method of computing wages of management, the above considerations have been borne in mind, and an attempt has been made to reconcile simplicity of computation with accuracy as far as is practicable in ordinary cost of production studies. It must be remembered that there are many factors in such studies which it is not possible to find with complete accuracy, by methods which are simple enough to be used in ordinary studies of cost. Therefore, it is often necessary to use methods which are partly arbitrary, but which closely approximate the exact facts, and which gain in facility of use what they lack in exactness.

In drawing up the following method, the guiding considerations have been: that profit is the ultimate measurement of wages of management over a long period of time, but that all of profit and of profit alone cannot be allowed as wages of management, for reasons which were explained above. To allow all of profit would simply be begging the question and would also introduce the seasonal fluctuations which it is desirable to eliminate, or at least to reduce as far as possible. Nor can any fixed proportion of profit be taken and called wages of management.

The conclusion reached on this subject was to base the allowance for wages of management, not on the actual profit, but on the profit which a farmer would make if he sold his milk at the price which would be fixed by the bulk line of cost. This hypothetical profit will be referred to below as "normal profit." Now, normal profit will be independent of fluctuations in market price but will still be greatly influenced by seasonal or temporary fluctuations. In order to overcome this, the allowance for wages of management may be based on some factor or aspect of production which shows a close correlation to profit, and which is itself a reflection of the ability of the producer.

The efficiency with which a farmer feeds his cows is probably the most significant of all tests of his ability as a dairyman. The efficiency with which he feeds will be much more nearly constant, from year to year, than will his profits, and the cost of feed per quart of milk will, therefore, be more significant than will the profit for any one particular year. In short, this method is intended to make an allowance for wages of management in accordance to the success of the particular dairyman in keeping down the cost of feed per unit of product. The feed cost covers all sorts of feed: forage, ensilage, pasturage, and soilage, as well as grain.

The method proposed, now proceeds on the assumption that, taking a period of several years, the normal profit from a particular dairy will stand in the same relation to the bulk line, as its efficiency in feeding stands to a corresponding bulk line for efficiency of feeding (cost of feed per quart of milk). In other words, if the variation in profit in a given neighborhood is 3 cents per quart, and the variation in cost of feed is 2 cents per quart; then one would expect a dairy which is making a profit of 1½ cents per quart (*i.e.*, one whose total expenses per quart are 1½ cents less than the bulk-line cost), to spend 1 cent per quart less for feed than the dairy at the bulk line. Or conversely, if a dairy is spending for feed 1 cent per quart less than the dairy at the bulk line, then we should expect this dairy to make a profit of 1½ cents per quart, if the profits and losses for several years be averaged up.

Assuming dependable data to have been obtained from a large number of dairies, which were representative of those supplying a given market, this method of computation would proceed as follows:

A. (1) The total of expenses (no allowance for wages of management or supervision being included) is first computed and reduced to a cost per quart basis.

(2) The dairies are then arranged in order of the cost per quart, so found, and the point at which the increase in cost for a given increment of product becomes most marked, is taken as establishing the normal cost, or the bulk-line cost. This is usually at a point below which about 70 percent to 80 percent of the milk is produced.

B. (3) From the table set up for (2), the interquartile range in cost of production is found, that is, the range from the cost below which 25 percent of the milk is produced, to the cost below which 75 percent of it is produced.

(4) Next arrange the dairies in order of the cost of feed per quart of milk, and find the interquartile range for that.

(5) Divide the interquartile range of cost of production per quart, by that of cost of feed per quart of milk. The interquartile ranges are used in order to avoid the influence of exceptional and extreme cases.

(6) Ascertain the bulk-line cost of feed per quart of milk, that is, the cost for feed below which the same percentage of the milk is pro-

duced as that below the bulk line for cost per quart. For instance, if the bulk line for cost per quart is at the point below which 80 percent of the milk is produced, then the bulk line for cost of feed will be the 80 percent line for cost of feed.

(7) The factor obtained in (5) is now to be applied to each individual dairy, according to its position above or below the bulk line for cost of feed per quart of milk.

Now, letting W represent wages of management, Q, the interquartile range of normal cost, R, the interquartile range of cost of feed per quart of milk, and X, the difference between the bulk-line cost of feed per quart, and the cost of feed per quart in a given dairy; then the equation for wages of management in that dairy may be represented as:

$$W = \left(\frac{Q}{R}\right) X.$$

But the factor (Q/R) is constant for a given study, and will need only to be multiplied by X for any particular dairy.

Suppose for instance: the interquartile range for the cost per quart were 1.74 cents, and the interquartile range for cost of feed per quart 1.60 cents; then (Q/R) would be about 1.08. And if the bulk-line cost of feed per quart were 3.8 cents, then in a dairy with a feed cost of 3.4 cents per quart, the difference X would be .4 cent. Now substituting in the equation $(Q/R)X$, we get $1.08 \times .4$ cent which equals .432 cent, the allowance per quart in that dairy for wages of management.

It is not presumed that this method will determine wages of management absolutely. But it is thought that it will furnish data closely approximate to true wages of management, and but little influenced by seasonal or temporary variations. It is quite possible that a more accurate device than the above formula may be found, but the writer believes it may be of some use as a reasonably close approximation of wages of management, closely correlated to efficiency of production, and based on a factor of production closely related to the farmer's ability as a manager. It may also be of value as furnishing, in analyses of the dairy business, a method by which the efficiency and managerial ability of the individual dairymen, included in a study, may be compared directly, by means of a single significant term.